SEQUENCE LISTING

<110> Li, Dean
       Park, Kye Won

<120> METHODS AND COMPOSITIONS FOR MANIPULATING THE GUIDED
NAVIGATION OF ENDOTHELIAL TUBES DURING ANGIOGENESIS

<130> UUTH-P01-010

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<141> 2004-12-21

<150> 60/392,142
<151> 2002-06-27

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<170> PatentIn version 3.1

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Ala Lys Met Arg Cys Arg Ser Ser Gly Gln Pro Pro Pro Thr Ile Arg
     50   55   60

Trp Leu Leu Asn Gly Gln Pro Leu Ser Met Ala Thr Pro Asp Leu His
65   70   75   80

Tyr Leu Leu Pro Asp Gly Thr Leu Leu Leu His Arg Pro Ser Val Gln
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Gly Arg Pro Gln Asp Asp Gln Asn Ile Leu Ser Ala Ile Leu Gly Val
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Tyr Thr Cys Glu Ala Ser Asn Arg Leu Gly Thr Ala Val Ser Arg Gly
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Arg Asp Thr Val Ala Val Val Gly Glu Ser Leu Val Leu Glu Cys Gly
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Lys Pro Leu Val Leu Gln Pro Gly Arg Arg Thr Val Ser Gly Asp Ser
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Leu Met Val Ser Arg Ala Glu Lys Asn Asp Ser Gly Thr Tyr Met Cys
          195   200   205

Met Ala Thr Asn Asn Ala Gly Gln Arg Glu Ser Arg Ala Ala Arg Val
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Ser Ile Gln Glu Ser Gln Asp His Lys Glu His Leu Glu Leu Leu Ala
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Val Arg Ile Gln Leu Glu Asn Val Thr Leu Leu Asn Pro Glu Pro Val
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Lys Gly Pro Lys Pro Gly Pro Ser Val Trp Leu Ser Trp Lys Val Ser
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Gly Pro Ala Ala Pro Ala Glu Ser Tyr Thr Ala Leu Phe Arg Thr Gln
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Arg Ser Pro Arg Asp Gln Gly Ser Pro Trp Thr Glu Val Leu Leu Arg
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Gly Leu Gln Ser Ala Lys Leu Gly Gly Leu His Trp Gly Gln Asp Tyr
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Glu Phe Lys Val Arg Pro Ser Ser Gly Arg Ala Arg Gly Pro Asp Ser
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Asn Val Leu Leu Leu Arg Leu Pro Glu Gln Val Pro Ser Ala Pro Pro
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Tyr Cys Val Gln Val Ala Ala Val Thr Gly Ala Gly Ala Gly Glu Leu
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Arg Asp Pro Arg Lys His Val Pro Trp Thr Leu Glu Gln Leu Arg Ala
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Leu Leu Leu Leu Gly Ile Thr Val Cys Ile Tyr Arg Arg Arg Lys Ala
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Gly Val His Leu Gly Pro Gly Leu Tyr Arg Tyr Thr Ser Glu Asp Ala
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Ile Leu Lys His Arg Met Asp His Ser Asp Ser Pro Trp Leu Ala Asp
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Pro Asp Thr Ser Thr Phe Tyr Gly Ser Leu Ile Ala Glu Gln Pro Ser
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Ser Pro Pro Val Arg Pro Ser Pro Lys Thr Pro Ala Ala Arg Arg Phe
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Pro Ser Lys Leu Ala Gly Thr Ser Ser Pro Trp Ala Ser Ser Asp Ser
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Leu Cys Ser Arg Arg Gly Leu Cys Ser Pro Arg Met Ser Leu Thr Pro
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Thr Glu Ala Trp Lys Ala Lys Lys Gln Glu Leu His Gln Ala Asn
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Ser Ser Pro Leu Leu Arg Gly Ser His Pro Met Glu Ile Trp Ala Trp
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Glu Leu Gly Ser Arg Ala Ser Lys Asn Leu Ser Gln Ser Pro Gly Pro
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Pro Leu Pro Pro Thr Pro Leu Ser Leu Arg Gly Ala Ser Ser His Asp
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Pro Gln Ala Ser Phe Leu Ser Cys Pro Ser Pro Ser Ser Ser Asn Leu
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Glu Glu Thr Pro Thr Asn Ser Val Ser Pro Met Pro Arg Ala Pro Ser
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Pro Pro Thr Thr Tyr Gly Tyr Ile Ser Ile Pro Thr Cys Ser Gly Leu
        835   840   845

Ala Asp Met Gly Arg Ala Gly Gly Val Gly Ser Glu Val Gly Asn
        850   855   860

Leu Leu Tyr Pro Pro Arg Pro Cys Pro Thr Pro Thr Pro Ser Glu Gly
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            885   890   895

Ala Arg Ala Ser Leu Val Ser Ser Ser Asp Gly Ser Phe Leu Ala Asp
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Thr His Phe Ala Arg Ala Leu Ala Val Ala Val Asp Ser Phe Gly Leu
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Ser Leu Asp Pro Arg Glu Ala Asp Cys Val Phe Thr Asp Ala Ser Ser
        930   935   940

Pro Pro Ser Pro Arg Gly Asp Leu Ser Leu Thr Arg Ser Phe Ser Leu
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Pro Leu Trp Glu Trp Arg Pro Asp Trp Leu Glu Asp Ala Glu Ile Ser
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His Thr Gln Arg Leu Gly Arg Gly Leu Pro Pro Trp Pro Pro Asp Ser
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Gly Asp Ser Ser
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Gln Ile Leu Val His Pro Gln Asp Gln Leu Phe Gln Gly Pro Gly Pro
        35   40   45

Ala Arg Met Ser Cys Gln Ala Ser Gly Gln Pro Pro Pro Thr Ile Arg
    50   55   60

Trp Leu Leu Asn Gly Gln Pro Leu Ser Met Val Pro Pro Asp Pro His
65   70   75   80

His Leu Leu Pro Asp Gly Thr Leu Leu Leu Leu Gln Pro Pro Ala Arg
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Gly His Ala His Asp Gly Gln Ala Leu Ser Thr Asp Leu Gly Val Tyr
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Thr Cys Glu Ala Ser Asn Arg Leu Gly Thr Ala Val Ser Arg Gly Ala
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Arg Leu Ser Val Ala Val Leu Arg Glu Asp Phe Gln Ile Gln Pro Arg
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Asp Met Val Ala Val Val Gly Glu Gln Phe Thr Leu Glu Cys Gly Pro
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Leu Met Ala Arg Ala Glu Lys Ser Asp Glu Gly Thr Tyr Met Cys Val
            195             200             205


Ala Thr Asn Ser Ala Gly His Arg Glu Ser Arg Ala Ala Arg Val Ser
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Ile Gln Glu Pro Gln Asp Tyr Thr Glu Pro Val Glu Leu Leu Ala Val
225             230             235             240


Arg Ile Gln Leu Glu Asn Val Thr Leu Leu Asn Pro Asp Pro Ala Glu
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Gly Pro Lys Pro Arg Pro Ala Val Trp Leu Ser Trp Lys Val Ser Gly
            260             265             270


Pro Ala Ala Pro Ala Gln Ser Tyr Thr Ala Leu Phe Arg Thr Gln Thr
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Trp Gln Ser Ala Glu Leu Gly Gly Leu His Trp Gly Gln Asp Tyr Glu
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Phe Lys Val Arg Pro Ser Ser Gly Arg Ala Arg Gly Pro Asp Ser Asn
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Val Leu Leu Leu Arg Leu Pro Glu Lys Val Pro Ser Ala Pro Pro Gln
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Glu Val Thr Leu Lys Pro Gly Asn Gly Thr Val Phe Val Ser Trp Val
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Pro Pro Pro Ala Glu Asn His Asn Gly Ile Ile Arg Gly Tyr Gln Val
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Trp Ser Leu Gly Asn Thr Ser Leu Pro Pro Ala Asn Trp Thr Val Val
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Cys Val Gln Val Ala Ala Val Thr Gly Ala Gly Ala Gly Glu Pro Ser
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Arg Pro Val Cys Leu Leu Leu Glu Gln Ala Met Glu Arg Ala Thr Gln
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Glu Pro Ser Glu His Gly Pro Trp Thr Leu Glu Gln Leu Arg Ala Thr
        450   455   460

Leu Lys Arg Pro Glu Val Ile Ala Thr Cys Gly Val Ala Leu Trp Leu
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Leu Leu Leu Gly Thr Ala Val Cys Ile His Arg Arg Arg Arg Ala Arg
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Val His Leu Gly Pro Gly Leu Tyr Arg Tyr Thr Ser Glu Asp Ala Ile
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Leu Lys His Arg Met Asp His Ser Asp Ser Gln Trp Leu Ala Asp Thr
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Pro Gln Leu Ala Gln Leu Ser Ser Pro Cys Ser Ser Ser Asp Ser Leu
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Cys Ser Arg Arg Gly Leu Ser Ser Pro Arg Leu Ser Leu Ala Pro Ala
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Glu Ala Trp Lys Ala Lys Lys Lys Gln Glu Leu Gln His Ala Asn Ser
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Ser Pro Leu Leu Arg Gly Ser His Ser Leu Glu Leu Arg Ala Cys Glu
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Leu Gly Asn Arg Gly Ser Lys Asn Leu Ser Gln Ser Pro Gly Ala Val
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Pro Gln Ala Leu Val Ala Trp Arg Ala Leu Gly Pro Lys Leu Leu Ser
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Ser Ser Asn Glu Leu Val Thr Arg His Leu Pro Pro Ala Pro Leu Phe
705   710   715   720

Pro His Glu Thr Pro Pro Thr Gln Ser Gln Gln Thr Gln Pro Pro Val
            725   730   735

Ala Pro Gln Ala Pro Ser Ser Ile Leu Leu Pro Ala Ala Pro Ile Pro
            740   745   750

Ile Leu Ser Pro Cys Ser Pro Pro Ser Pro Gln Ala Ser Ser Leu Ser
            755   760   765

Gly Pro Ser Pro Ala Ser Ser Arg Leu Ser Ser Ser Ser Leu Ser Ser
    770   775   780

Leu Gly Glu Asp Gln Asp Ser Val Leu Thr Pro Glu Glu Val Ala Leu
785   790   795   800

Cys Leu Glu Leu Ser Glu Gly Glu Glu Thr Pro Arg Asn Ser Val Ser
            805   810   815

Pro Met Pro Arg Ala Pro Ser Pro Pro Thr Thr Tyr Gly Tyr Ile Ser
            820   825   830

Val Pro Thr Ala Ser Glu Phe Thr Asp Met Gly Arg Thr Gly Gly Gly
            835   840   845

Val Gly Pro Lys Gly Gly Val Leu Leu Cys Pro Pro Arg Pro Cys Leu
    850   855   860

Thr Pro Thr Pro Ser Glu Gly Ser Leu Ala Asn Gly Trp Gly Ser Ala
865   870   875   880

Ser Glu Asp Asn Ala Ala Ser Ala Arg Ala Ser Leu Val Ser Ser Ser
           885   890   895 .

Asp Gly Ser Phe Leu Ala Asp Ala His Phe Ala Arg Ala Leu Ala Val
           900   905   910

Ala Val Asp Ser Phe Gly Phe Gly Leu Glu Pro Arg Glu Ala Asp Cys
           915   920   925

Val Phe Ile Asp Ala Ser Ser Pro Pro Ser Pro Arg Asp Glu Ile Phe
     930   935   940

Leu Thr Pro Asn Leu Ser Leu Pro Leu Trp Glu Trp Arg Pro Asp Trp
945   950   955   960

Leu Glu Asp Met Glu Val Ser His Thr Gln Arg Leu Gly Arg Gly Met
           965   970   975

Pro Pro Trp Pro Pro Asp Ser Gln Ile Ser Ser Gln Arg Ser Gln Leu
           980   985   990

His Cys Arg Met Pro Lys Ala Gly Ala Ser Pro Val Asp Tyr Ser
           995   1000   1005

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<212> PRT
<213> Mouse

<400> 5

Met Gly Ser Gly Gly Thr Gly Leu Leu Gly Thr Glu Trp Pro Leu Pro
1   5   10   15

Leu Leu Leu Leu Phe Ile Met Gly Gly Glu Ala Leu Asp Ser Pro Pro
           20   25   30

Gln Ile Leu Val His Pro Gln Asp Gln Leu Leu Gln Gly Ser Gly Pro
           35   40   45

Ala Lys Met Arg Cys Arg Ser Ser Gly Gln Pro Pro Pro Thr Ile Arg
     50   55   60

Trp Leu Leu Asn Gly Gln Pro Leu Ser Met Ala Thr Pro Asp Leu His
65   70   75   80

Tyr Leu Leu Pro Asp Gly Thr Leu Leu Leu His Arg Pro Ser Val Gln
              85   90   95

Gly Arg Pro Gln Asp Asp Gln Asn Ile Leu Ser Ala Ile Leu Gly Val
              100   105   110

Tyr Thr Cys Glu Ala Ser Asn Arg Leu Gly Thr Ala Val Ser Arg Gly
              115   120   125

Ala Arg Leu Ser Val Ala Val Leu Gln Glu Asp Phe Gln Ile Gln Pro
              130   135   140

Arg Asp Thr Val Ala Val Val Gly Glu Ser Leu Val Leu Glu Cys Gly
145   150   155   160

Pro Pro Trp Gly Tyr Pro Lys Pro Ser Val Ser Trp Trp Lys Asp Gly
              165   170   175

Lys Pro Leu Val Leu Gln Pro Gly Arg Arg Thr Val Ser Gly Asp Ser
              180   185   190

Leu Met Val Ser Arg Ala Glu Lys Asn Asp Ser Gly Thr Tyr Met Cys
              195   200   205

Met Ala Thr Asn Asn Ala Gly Gln Arg Glu Ser Arg Ala Ala Arg Val
       210   215   220

Ser Ile Gln Glu Ser Gln Asp His Lys Glu His Leu Glu Leu Leu Ala
225   230   235   240

Val Arg Ile Gln Leu Glu Asn Val Thr Leu Leu Asn Pro Glu Pro Val
              245   250   255

Lys Gly Pro Lys Pro Gly Pro Ser Val Trp Leu Ser Trp Lys Val Ser
              260   265   270

Gly Pro Ala Ala Pro Ala Glu Ser Tyr Thr Ala Leu Phe Arg Thr Gln
              275   280   285

Arg Ser Pro Arg Asp Gln Gly Ser Pro Trp Thr Glu Val Leu Leu Arg
              290   295   300

Gly Leu Gln Ser Ala Lys Leu Gly Gly Leu His Trp Gly Gln Asp Tyr
305   310   315   320

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Glu Phe Lys Val Arg Pro Ser Ser Gly Arg Ala Arg Gly Pro Asp Ser
            325             330             335

Asn Val Leu Leu Leu Arg Leu Pro Glu Gln Val Pro Ser Ala Pro Pro
            340             345             350

Gln Gly Val Thr Leu Arg Ser Gly Asn Gly Ser Val Phe Val Ser Trp
            355             360             365

Ala Pro Pro Pro Ala Glu Ser His Asn Gly Val Ile Arg Gly Tyr Gln
    370             375             380

Val Trp Ser Leu Gly Asn Ala Ser Leu Pro Ala Ala Asn Trp Thr Val
385             390             395             400

Val Gly Glu Gln Thr Gln Leu Glu Ile Ala Thr Arg Leu Pro Gly Ser
            405             410             415

Tyr Cys Val Gln Val Ala Ala Val Thr Gly Ala Gly Ala Gly Glu Leu
            420             425             430

Ser Thr Pro Val Cys Leu Leu Leu Glu Gln Ala Met Glu Gln Ser Ala
            435             440             445

Arg Asp Pro Arg Lys His Val Pro Trp Thr Leu Glu Gln Leu Arg Ala
    450             455             460

Thr Leu Arg Arg Pro Glu
465             470


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<212>  PRT
<213>  Homo sapiens

<400>  6

Met Gly Ser Gly Gly Asp Ser Leu Leu Gly Gly Arg Gly Ser Leu Pro
1               5               10              15

Leu Leu Leu Leu Leu Ile Met Gly Gly Met Ala Gln Asp Ser Pro Pro
            20              25              30

Gln Ile Leu Val His Pro Gln Asp Gln Leu Phe Gln Gly Pro Gly Pro
            35              40              45
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Ala Arg Met Ser Cys Gln Ala Ser Gly Gln Pro Pro Pro Thr Ile Arg
    50              55              60

Trp Leu Leu Asn Gly Gln Pro Leu Ser Met Val Pro Pro Asp Pro His
65              70              75                      80

His Leu Leu Pro Asp Gly Thr Leu Leu Leu Gln Pro Pro Ala Arg
            85              90              95

Gly His Ala His Asp Gly Gln Ala Leu Ser Thr Asp Leu Gly Val Tyr
            100             105             110

Thr Cys Glu Ala Ser Asn Arg Leu Gly Thr Ala Val Ser Arg Gly Ala
        115             120             125

Arg Leu Ser Val Ala Val Leu Arg Glu Asp Phe Gln Ile Gln Pro Arg
    130             135             140

Asp Met Val Ala Val Val Gly Glu Gln Phe Thr Leu Glu Cys Gly Pro
145             150             155             160

Pro Trp Gly His Pro Glu Pro Thr Val Ser Trp Trp Lys Asp Gly Lys
            165             170             175

Pro Leu Ala Leu Gln Pro Gly Arg His Thr Val Ser Gly Gly Ser Leu
            180             185             190

Leu Met Ala Arg Ala Glu Lys Ser Asp Glu Gly Thr Tyr Met Cys Val
        195             200             205

Ala Thr Asn Ser Ala Gly His Arg Glu Ser Arg Ala Ala Arg Val Ser
    210             215             220

Ile Gln Glu Pro Gln Asp Tyr Thr Glu Pro Val Glu Leu Leu Ala Val
225             230             235             240

Arg Ile Gln Leu Glu Asn Val Thr Leu Leu Asn Pro Asp Pro Ala Glu
            245             250             255

Gly Pro Lys Pro Arg Pro Ala Val Trp Leu Ser Trp Lys Val Ser Gly
            260             265             270

Pro Ala Ala Pro Ala Gln Ser Tyr Thr Ala Leu Phe Arg Thr Gln Thr
            275             280             285
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Ala Pro Gly Gly Gln Gly Ala Pro Trp Ala Glu Glu Leu Leu Ala Gly
    290   295   300

Trp Gln Ser Ala Glu Leu Gly Gly Leu His Trp Gly Gln Asp Tyr Glu
305   310   315   320

Phe Lys Val Arg Pro Ser Ser Gly Arg Ala Arg Gly Pro Asp Ser Asn
            325   330   335

Val Leu Leu Leu Arg Leu Pro Glu Lys Val Pro Ser Ala Pro Pro Gln
            340   345   350

Glu Val Thr Leu Lys Pro Gly Asn Gly Thr Val Phe Val Ser Trp Val
        355   360   365

Pro Pro Pro Ala Glu Asn His Asn Gly Ile Ile Arg Gly Tyr Gln Val
    370   375   380

Trp Ser Leu Gly Asn Thr Ser Leu Pro Pro Ala Asn Trp Thr Val Val
385   390   395   400

Gly Glu Gln Thr Gln Leu Glu Ile Ala Thr His Met Pro Gly Ser Tyr
            405   410   415

Cys Val Gln Val Ala Ala Val Thr Gly Ala Gly Ala Gly Glu Pro Ser
            420   425   430

Arg Pro Val Cys Leu Leu Leu Glu Gln Ala Met Glu Arg Ala Thr Gln
    435   440   445

Glu Pro Ser Glu His Gly Pro Trp Thr Leu Glu Gln Leu Arg Ala Thr
    450   455   460

Leu Lys Arg Pro Glu
465